

SEQUENCE LISTING

<110> Sapporo Breweries Ltd.
<120> A method for detecting and determining lactic acid bacteria
<130> FP05-0057-00
<150> JP 2004-040,381
<151> 2004-02-17
<160> 30
<170> PatentIn version 3.1
<210> 1
<211> 1565
<212> DNA
<213> Lactobacillus hexosus

<220>
<221> source
<222> (1)..(1565)
<223> strain="SBC8050"

<400> 1
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cgggtgagta acacgtgggt aacctaccca aaagtgggg ataacattt gaaacagatg 180
ctaataccgc ataatttaag tgaccacatg gtcacttaat gaaagatggy ttccggctatc 240
acttttggat ggaccgcgg cgtttagtgc agttggtggg ataacggcct accaaggcga 300
tgatacgtag ccgacactgag aggtaatcg gccacattgg gactgagaca cggcccaaac 360
tcctacggga ggcacgagta gggaatcttc cacaatggac gaaagtctga tggagcaacg 420
ccgcgtgagt gaagaagggtt ttccggatcgt aaaactctgt tggatggaa gaacaggac 480
tagagtaact gttatccta tgacggtatac caaccagaaa gccacggcta actacgtgcc 540
agcagccgcg gtaatacgtta ggtggcaagc gttgtccggta tttattggc gtaaagcggag 600
ccgcaggcgtt ttttaagtc tgatgtgaaa gccttcggct taaccgaaga agtgcattag 660
aaactggaa acttgagtgc agaagaggag agtggactc catgtgtac ggtggaaatgc 720
gtagatatat ggaagaacac cagtggcgaa ggccggcttc tggctgtaa ctgacgctga 780
ggctcgaaag tatggggagc gaacaggatt agataccctg gtatccata ccgtaaacga 840
tgaatctaa gtgttggagg gtttccgccc ttccgtgtcgt cagctaacgc attaagcatt 900
ccgcctgggg agtacgaccg caagggtgaa actcaaaggaa attgacgggg gcccgcacaa 960
gcgggtggac atgtggtttta attcgaagct acgcgaagaa ctttaccagg tcttgcacatc 1020
ctttgaccac tgttagagata cagctttccc ttccgggaca aagtgcacagg tggatgtcatgg 1080
ttgtcgctcgatctgtgtcgt gagatgttgg gttaaatccc gcaacgcggcc caacccttat 1140
gactagttgc cagcattaag ttgggcactc tagtgagact gccggtgaca aaccggagga 1200
aggtggggat gacgtcaaat cagcatgccc cttatgaccc gggctacaca cgtgtacaa 1260
tgggtggatc aacgaggatgc gaacccgcga gggtaagctt atctctttaaa gccaatctca 1320
gttcggatttgc taggctgcaatctgcctaca tgaagtcggatcgtatgcgtatgc 1380
agcacgcgcg ggtgaataacg ttcccgcccttgcacac ccggccgtcac accatgagag 1440
tttgtaaacac ccgaagccgg tgggttaacc tctatgagga gctaaccgttc taagggtggaa 1500
cagatgatttgc gggtaagtc gtaacaaggatgc gacccgtatggatcacc 1560

tcctt		1565
<210>	2	
<211>	517	
<212>	DNA	
<213>	Lactobacillus hexosus	
<220>		
<221>	source	
<222>	(1)..(517)	
<223>	strain="SBC8050"	
<400>	2	
cagttctgtg tttacatggc gttggcgctt cagtcgttaa cgctttgtct agccaattaa	60	
acgttgaggc ccttaaagaa gaaaaacgc actatatggc tttcaagcgc ggtaaagtta	120	
atactgagct taaggttagc ggtacaattc cagaacatga acacggcaca atttttcatt	180	
tttggcctga tcatgatatt tttagggaaa caaccgttt tgatattaaa attttaacaa	240	
cgcgaattcg tgagttggcc ttttgaata agggtttacg aattagcatt gaagattac	300	
gtcctgagaa accgacccaa gaagtttcc actatgaagg tggcattaag agttacgttg	360	
agtattttaga caacggtaag cacgatctt ttccagagcc aatttacgtg gaaggtgacg	420	
aaaagggaat taaggttgaa gttgctttac aatacactga cgattaccac actaacttg	480	
tgaccttcgc caataatatt catacctatg aagtggaa	517	
<210>	3	
<211>	1526	
<212>	DNA	
<213>	Lactobacillus pseudocollinoides	
<220>		
<221>	source	
<222>	(1)..(1526)	
<223>	strain="SBC8057"	
<400>	3	
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cgttaaatga agtgcttgca cggattttaa catcgatga gtggcgaact ggtgagtaac	120	
acgtggtaa cctgcccaga agcaggggat aacacttggaa aacaggtgct aataccgtat	180	
aacaacaaaa accgcatggt ttttgttga aaggtggttt cggctatcac ttctggagg	240	
accccgccgc tattagctag ttggtgagg aacggttcac caaggcaatg atacgtagcc	300	
gacctgagag ggtaatcgcc cacattggaa ctgagacacg gcccaaactc ctacgggagg	360	
cagcagtagg gaatttcca caatggacga aagtctgatg gagcaacgcc gcgtgagtga	420	
agaaggttt cggatcgtaa aactctgtt ttaagaaga acacgttga gagtaactgt	480	
tcagacgttgc acggatttca accagaaagc cacggctaac tacgtggccag cagcccggt	540	
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cttaagtctg atgtaaagc cttcggctt accggagaag tgcattggaa actggtaac	660	
ttgagtgcag aagaggacag tggactcca tgttagcgg tggaaatgcgt agatataatgg	720	
aagaacacca gtggcgaagg cggctgtctg gtctgttaact gacgctgagg ctcgaaagca	780	
tgggtacgttgc acaggattag ataccctggt agtccatgcc gtaaacatgt aatgttagt	840	
gttggagggt ttccggccctt cagtcggca gctaacgttgc taaggattcc gcctggggag	900	
tacgaccgcac aggttgcac tcaaaaggaaat tgacggggcc cccgacaaacgc ggtggagcat	960	
gtggtttaat tcgaaagctac gcaagaacc ttaccaggc ttgacataact gtgctaacct	1020	
aagagattag gcgtccctt cggggacgcac gatacagggtt gtgcattggct gtgcgtcagct	1080	

cgtgtcgta gatgttgggt taagtccgc aacgagcga acccttattg tcagttgcc 1140
gcatttagtt gggcaactctg gcgagactgc cggtgacaaa cgggaggaag gtggggatga 1200
cgtcaagtca tcatgcccct tatgacctgg gctacacacg tgctacaatg gatgtacaa 1260
cgagttgcga actcgcgaga gcaagcta at ctcttaaagg catttcgt tcggactgta 1320
ggctgcaact cgcc tacacg aagt cggaaat cgct tagtaat cgcggatcag catgcccg 1380
tgaatacgtt cccggccctt gtacacacg cccgtcacac catgagagtt tgcaacaccc 1440
aaagtccgtt cggtaacctt cgggagccag ccgcctaagg tggggcagat gattaggtg 1500
aagt cgttaac aaggtagccg taggag 1526

<210> 4
<211> 484
<212> DNA
<213> Lactobacillus pseudocollinoides

<220>
<221> source
<222> (1)..(484)
<223> strain="SBC8057"

<400> 4
ctgggtgtct gcatgggtgt gggcatccgt gtgaacgogc tgtctccoga ctggao gtt 60
agg tccgttcg ggacggcaag cgg tactaca tggacttgc gtacggccac gtt aagaccc 120
caatgaaggt cattgacgaa ggg taccag aaa acatcg cgggaccacg gtgacttct 180
tgccgaccc agatatttc cgggaaacca ctacgtacg cattaagatc ctgaccaccc 240
ggatccgcga gctggcttc ttaaacaagg gtctgcgcat tactatccgt gatgagcggc 300
ctgacgagcc aactgaacaa tccttatgt acgaaggcgg gatccgcat tacgttaat 360
at taaataaa aaacaaggat gtcattttcc ctgaaccaat ctatgttcaa ggtgaagaaa 420
agggcatcac ggttgaagtt gcgttgcagt ataccgacg a taccactca aac tttga 480
cgtt 484

<210> 5
<211> 330
<212> DNA
<213> Pediococcus damnosus

<220>
<221> source
<222> (1)..(330)
<223> strain="SBC8023"

<220>
<221> misc_feature
<222> (19)..(19)
<223> n stands for any base

<400> 5
ttatttgcc tgtcaa atnc aagt tcttga aggttggaa gcagtt gaa aac tcccg 60
aatgtatatt gggcaacaa gtgc caagg actccatcat ttat tggaa aatttttga 120
taacggatt gatgaa gctt tagccggtt tgcggataaa atcgatgta cgg tggaaa 180
agataatgc attacggttt ttgataatgg ccgaggaa tccaggctaa 240
gactggtaaa ccagccctag agacagttt cacaat tttg catgcgggtg gtaat tgg 300
cggcggcgg tataa agttt caggtgggt 330

<210> 6
<211> 21
<212> DNA
<213> Artificial

<220>
<223> a primer for L. hexosus
<400> 6
gcggtaaagt taatactgag c 21

<210> 7
<211> 20
<212> DNA
<213> Artificial

<220>
<223> a primer for L. hexosus or L. pseudocollinoides
<400> 7
atkccctttt cktcaccttc 20

<210> 8
<211> 18
<212> DNA
<213> Artificial

<220>
<223> a primer for L. pseudocollinoides
<400> 8
gttcgggacg gcaagcgg 18

<210> 9
<211> 17
<212> DNA
<213> Artificial

<220>
<223> a primer for P. damnosus
<400> 9
aagtcttga aggtttg 17

<210> 10
<211> 16
<212> DNA
<213> Artificial

<220>
<223> a primer for P. damnosus
<400> 10
tcggccatta tcaaaa 16

<210> 11
<211> 21
<212> DNA
<213> Artificial

<220>
<223> a primer
<400> 11
tggtaaata ccgtcaaccc t 21

<210> 12
<211> 20
<212> DNA
<213> Artificial

<220>
<223> a primer
<400> 12
ggataccgtc actgcattag 20

<210> 13
<211> 18
<212> DNA
<213> Artificial

<220>

<223> a primer
<400> 13
ttgaataccg tcaacgtc 18

<210> 14
<211> 20
<212> DNA
<213> Artificial

<220>
<223> a primer

<400> 14
ccatggtc acttaattc 20

<210> 15
<211> 19
<212> DNA
<213> Artificial

<220>
<223> a probe

<220>
<221> modified_base
<222> (1)..(1)
<223> LC Red640 labelled

<220>
<221> modified_base
<222> (19)..(19)
<223> phosphorylated

<400> 15
cgccactcgc ttcatgtt 19

<210> 16
<211> 20
<212> DNA
<213> Artificial

<220>
<223> a probe

<220>
<221> modified_base
<222> (1)..(1)
<223> LC Red640 labelled

<220>
<221> modified_base
<222> (20)..(20)
<223> phosphorylated

<400> 16
cgccacccac atcaattaac 20

<210> 17
<211> 20
<212> DNA
<213> Artificial

<220>
<223> a probe

<220>
<221> modified_base
<222> (1)..(1)
<223> LC Red705 labelled

<220>
<221> modified_base
<222> (20)..(20)
<223> phosphorylated

<400> 17
cgccactcac tttatagttg 20

<210> 18
<211> 18
<212> DNA
<213> Artificial

<220>
<223> a probe

<220>
<221> modified_base
<222> (1)..(1)
<223> LC Red705 labelled

<220>
<221> modified_base
<222> (18)..(18)
<223> phosphorylated

<400> 18
cgccactcat ccgatgtt 18

<210> 19
<211> 22
<212> DNA
<213> Artificial

<220>
<223> a probe

<220>
<221> modified_base
<222> (22)..(22)
<223> FITC labelled

<400> 19
ggttacccac gtgttactca cc 22

<210> 20
<211> 23
<212> DNA
<213> Artificial

<220>
<223> a probe

<220>
<221> modified_base
<222> (23)..(23)
<223> FITC labelled

<400> 20
gtggaaggta aagaaaaggaaat 23
aat

<210> 21
<211> 24
<212> DNA
<213> Artificial

<220>
<223> a probe

<220>
<221> modified_base
<222> (1)..(1)
<223> LC Red705 labelled

<220>
<221> modified_base
<222> (24)..(24)
<223> phosphorylated

<400> 21
ggttgaaggta gctttacagt acac 24

<210> 22
<211> 21
<212> DNA

<213> Artificial
<220>
<223> a probe

<220>
<221> modified_base
<222> (21)..(21)
<223> FITC labelled

<400> 22
cttggtag accctttca a 21

<210> 23
<211> 18
<212> DNA
<213> Artificial

<220>
<223> a probe

<220>
<221> modified_base
<222> (1)..(1)
<223> LC Red640 labelled

<220>
<221> modified_base
<222> (18)..(18)
<223> phosphorylated

<400> 23
gtgcattggc gtcttac 18

<210> 24
<211> 19
<212> DNA
<213> Artificial

<220>
<223> a primer

<400> 24
cgagcttcg ttgaatgac 19

<210> 25
<211> 21
<212> DNA
<213> Artificial

<220>
<223> a primer

<400> 25
ggtcattcgt ggccggaaaa a 21

<210> 26
<211> 21
<212> DNA
<213> Artificial

<220>
<223> a primer (GYPF)

<400> 26
ggwtayaarg twtcwggtag t 21

<210> 27
<211> 18
<212> DNA
<213> Artificial

<220>
<223> a primer (GYPR)

<400> 27
tcatgygtwc accttcat 18

<210> 28
<211> 23
<212> DNA
<213> Artificial

<220>
<223> a primer (GP1-F)

<220>
<221> misc_feature
<222> (7)..(7)
<223> n stands for any base

<220>
<221> misc_feature
<222> (11)..(11)
<223> n stands for any base

<220>
<221> misc_feature
<222> (12)..(12)
<223> n stands for any base

<220>
<221> misc_feature
<222> (14)..(14)
<223> n stands for any base

<220>
<221> misc_feature
<222> (20)..(20)
<223> n stands for any base

<400> 28
attatgntgc nngncaaatn caa 23

<210> 29
<211> 21
<212> DNA
<213> Artificial

<220>
<223> a primer (GP1-R)

<400> 29
accacccwgaw acytrrtawc c 21

<210> 30
<211> 21
<212> DNA
<213> Artificial

<220>
<223> a universal primer 16S rRNA gene

<400> 30
tggagagttt gatccctggct c 21